

6.2


Solving Equations by Using Balance Strategies

FOCUS

- Model a problem with a linear equation, use balance strategies to solve the equation pictorially, and record the process symbolically.

Tracey has to solve the equation $4a + 6 = 7a$. Could she use an arrow diagram to model this equation? How could these balance scales help Tracey?



Each  has a mass of 1 g.

LESSON 4

Connect

SOLVING EQUATIONS:

EXAMPLE:

$$2x - 4 + 3x = 16$$

$$5x - 4 = 16$$

$$5x - 4 + 4 = 16 + 4$$

$$\frac{5x}{5} = \frac{20}{5}$$

$$x = 4$$

Things to Remember

Did you isolate the variable?

Did you have to divide by the number in front of the variable?

Did you need to get rid of the fraction?

Did you need to expand?

Did you have to collect like terms first?

Jan 21-8:53 AM

Jan 21-8:55 AM

Connect

SOLVING EQUATIONS:

YOU TRY!

$$3y - 7 = 2y + 3 - 4y$$

$$3y - 7 = -2y + 3$$

$$3y + 2y - 7 = -2y + 2y + 3$$

$$5y - 7 = 3$$

$$5y - 7 + 7 = 3 + 7$$

$$\frac{5y}{5} = \frac{10}{5}$$

$$y = 2$$

Things to Remember

Did you isolate the variable?

Did you have to divide by the number in front of the variable?

Did you need to get rid of the fraction?

Did you need to expand?

Did you have to collect like terms first?

Connect

SOLVING EQUATIONS:

EXAMPLE:

$$\frac{x}{2} + \frac{x}{3} = 5$$

$$6\left[\frac{x}{2}\right] + 6\left[\frac{x}{3}\right] = 6(5)$$

$$3x + 2x = 30$$

$$\frac{5x}{5} = \frac{30}{5}$$

$$x = 6$$

Things to Remember

Did you isolate the variable?

Did you have to divide by the number in front of the variable?

Did you need to get rid of the fraction?

Did you need to expand?

Did you have to collect like terms first?

Jan 21-8:55 AM

Jan 21-8:55 AM

Connect

SOLVING EQUATIONS:

YOU TRY!

$$\frac{y}{3} + \frac{y}{4} = 14$$

$$12\left[\frac{y}{3}\right] + 12\left[\frac{y}{4}\right] = 12(14)$$

$$4y + 3y = 168$$

$$\frac{7y}{7} = \frac{168}{7}$$

$$y = \frac{168}{7} \quad \boxed{y=24}$$

Things to Remember

Did you isolate the variable?

Did you have to divide by the number in front of the variable?

Did you need to get rid of the fraction?

Did you need to expand?

Did you have to collect like terms first?

Practice

CLASSWORK

Page 281 - #7, 8, 10, 11

Page 282 - #16, 19

Page 283 - #21

Jan 21-8:55 AM

Jan 21-8:55 AM